

MANUFACTURING EXTENSION PARTNERSHIP

Success Stories from the Field

SmartStix, LLC

Northwest Pennsylvania Industrial Resource Center

SmartStix LLC Markets New Product with Assistance from NWIRC

Client Profile:

SmartStix, LLC manufactures plastic lumber stickers for the lumber drying industry. The company employs 3 people at its facility in Franklin, Pennsylvania.

Situation:

Lumber stickers are the wooden strips used to keep wood separated for proper air circulation while being dried in kilns. Current wooden stickers are inexpensive, yet absorb oils from the woods they are in contact with. Those oils are then transferred to subsequent kiln batches causing staining of the woods. The staining, in turn, results in a lower quality, or grade, given to the finished product. The wooden stickers are also prone to warpage, which leads to increased manual labor to hand place the stickers as opposed to using automatic sticker layers. Smartstix' owner, James Aaron, contracted the Plastics Technology Center (PTC), through the Northwest Pennsylvania Industrial Resource Center (NWIRC), a NIST MEP network affiliate, to provide engineering assistance to groom his patented idea into a design that is appropriate for plastics manufacturing.

Solution:

PTC provided a systematic approach to product commercialization for SmartStix. The first step was to perform a manufacturing feasibility study, which included brainstorming manufacturing solutions, creating CAD designs for those processes, then obtaining local manufacturing estimates to pursue those solutions. Once a manufacturing method was selected, the PTC fully developed a design for that process, which included advanced engineering through structural analysis simulation and assisted with the creation of prototypes. The final step prior to launching production tooling was the creation of a prototype mold that allows performance testing on actual product. The plastic lumber stickers will greatly outperform wooden stickers, in wood staining, product straightness and longevity, and required labor costs, while only adding a 35 percent cost increase versus a current, premium hardwood lumber sticker. To adhere to Aaron's patent claims and required functionality, the structural foam injection molding process was ultimately chosen. As a result of PTC's direction, the product's weight, and subsequent cost reduction in raw materials and manufacturing time, was reduced by 11.2 percent.

Results:

- * Realized \$305,000 in cost savings.
- * Anticipated cost savings of \$3.2 million.
- * Created 3 new jobs.
- * Invested \$75,000 in engineering, prototyping and tooling.
- * Projected long-term investment of \$275,000 in production tooling.

Testimonial:

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"The Plastics Technology Center was able to help us by providing both engineering support and program management to take our patented idea and make it a product that can be manufactured at an acceptable cost with acceptable performance."

James Aaron , President